

CHAPTER SIX PROGRAMS FOR SURFACE WATER POLLUTION CONTROL

New Mexico uses a variety of mechanisms including State, federal, and/or local components to protect its surface waters from becoming polluted by point source discharges from municipal and non-municipal (i.e., industrial, state, and federal) sources. The principal mechanism is the federal National Pollutant Discharge Elimination System (NPDES) permit program. Under this program, a permit specifies the total amount and concentrations of contaminants that a permittee may discharge to a watercourse.

Pretreatment of industrial wastes that enter municipal wastewater treatment plants helps ensure that receiving waters are not polluted, that treatment processes are not disrupted, that NPDES permit limitations are not exceeded, and that toxic pollutants do not excessively contaminate sludge. While five cities in New Mexico are required to have federally approved pretreatment programs as part of their NPDES permits, the establishment and enforcement of an industrial waste ordinance by a municipality is basically a local responsibility.

Between 1972 and 1989, the federal wastewater construction grants program

provided grants to local communities for planning, design, and construction of wastewater treatment plants. These plants were designed to prevent and abate water pollution, promote public health and meet enforceable requirements of the federal Clean Water Act (CWA). Since 1988 the federal grant program has been replaced with the State revolving loan program administered by the New Mexico Environment Department (NMED) under the New Mexico Water Quality Control Commission (WQCC) regulations.

Pursuant to CWA § 404, the United States Army Corps of Engineers regulates dredge-and-fill operations in surface waters and wetlands of the State. NMED is statutorily (§ 74-6-4.E. NMSA 1978) charged to review each permit for conformance with State and federal law, regulations and water quality standards.

In addition to these federal programs, the State has developed several other mechanisms under WQCC regulations to protect surface water quality (1). Subpart I of these regulations contains a section which requires spill reporting and cleanup. Subpart II provides the basis for management of discharges to surface waters as well as for enforcement action

against dischargers in violation of State or federal regulations.

The State operator certification and training program under 20 NMAC 7.4 improves operator expertise regarding treatment processes and treatment plant operation. This part also ensures that treatment plants are adequately staffed by operators with the requisite training. These requirements help to ensure that NPDES permit limitations or approved ground water discharge plan requirements are met by treatment plant discharges to surface watercourses or ground water, respectively.

20 NMAC 7.5 regulations are used in administration of a State revolving loan fund. This fund provides low-interest monies for local authorities such as cities, counties, sanitation districts and Indian tribes for wastewater treatment plant construction.

In addition to regulatory measures, the WQCC has also approved a nonpoint source management program. This program is largely based on the voluntary implementation of Best Management Practices (BMPs).

This chapter discusses the uses of the mechanisms mentioned above for surface water pollution control in New Mexico.

THE STATE ROLE IN THE NPDES PROGRAM

While NPDES permits for discharges in New Mexico are issued and enforced by the United States Environmental Protection Agency's (EPA) Region VI office located in Dallas, Texas, the State plays a significant role in this permit program¹. NMED is statutorily (§ 74-6-4.E. NMSA 1978) charged with responsibility for certification of NPDES permits pursuant to CWA §401. NMED also receives a grant from the EPA to assist with the administration of the NPDES permit program.

Currently, there are 138 individual NPDES permits issued to dischargers in New Mexico (Figure 12). The number of NPDES permits increased moderately between 1984 and 1990 but stabilized in recent years. However, the number of permits is expected to increase dramatically upon implementation of the new NPDES sludge permitting program and when EPA begins permitting discharges into playa lakes. Since 1992 EPA has issued 6 NPDES "general" permits in New Mexico. These permits are for: (1) onshore oil and gas extraction, (2) storm water (baseline construction activities), (3) storm water (baseline non-construction-industrial activities), (4) storm water (multi-sector industrial activities), (5) concentrated animal feeding operations and (6)

underground storage tank (UST) remediation. EPA Region VIII (Denver) has issued a general permit on the Southern Ute Indian Reservation adjoining New Mexico's northern border for activities associated with coal bed methane gas development on the Reservation.

Federal NPDES Permits

EPA categorizes NPDES permits as either 'municipal' or 'non-municipal.' Municipal permits are issued for publicly-funded community wastewater treatment plants. Other discharges are classified as non-municipal. New Mexico is unique in that many of the non-municipal sources, often referred to as

¹ In 1991, EPA Region VI Offices in Dallas, Texas transferred their administrative responsibilities for NPDES permit program on the Navajo Reservation within New Mexico to EPA Region IX Offices in San Francisco, California.

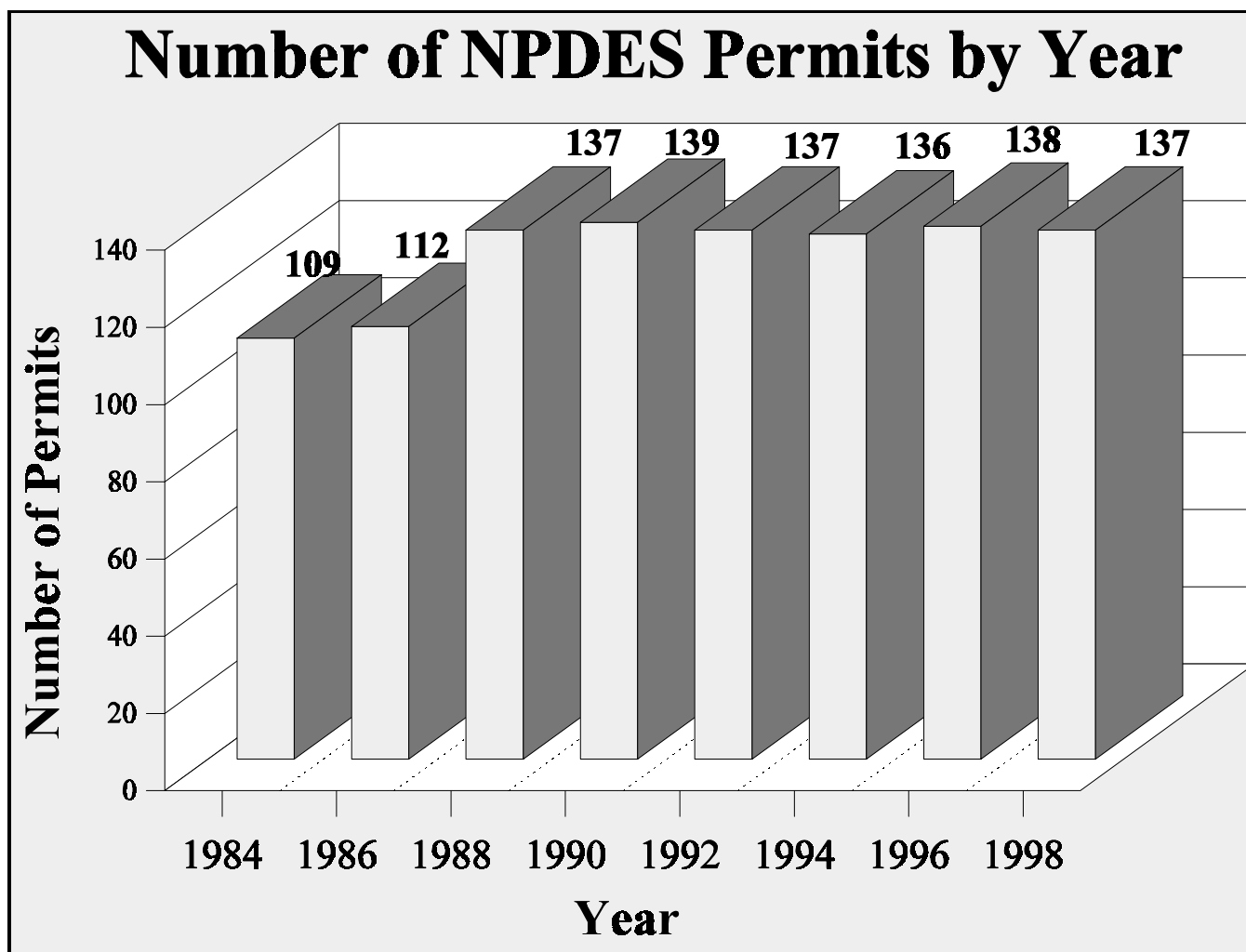


Figure 12. Number of NPDES Permits in New Mexico by Year.

'industrials', are small private domestic wastewater discharges (privately-owned sewage treatment plants) or mines rather than the types of discharges commonly assumed when the word 'industrials' is used (Figure 13).

NPDES permittees are further categorized by EPA as either 'major' or 'minor' dischargers. Major municipal permittees are classified as such if they have a one million gallons a day or greater design flow capacity or, in a few instances, where design flow is less than a million gallons, they have other concerns such as water quality based effluent limits. Industrial permittees are classified based upon a number of factors which include, but are not limited to type of industry, chemical constituents in the discharge, or use designation of the

receiving stream. There are currently 23 major municipal and nine major industrial permittees in New Mexico (Figure 14).

State Certification of NPDES Permits

Prior to issuing any NPDES permit in final form, EPA must first obtain from the State a certification that the proposed NPDES permit is consistent with State and federal requirements. NMED performs this task as a statutory responsibility. Through certification, NMED verifies that the conditions of the NPDES permit meet applicable provisions of the federal Clean Water Act as well as applicable provisions of State laws such as water quality standards, and the water quality management plan

(Figure 15).

One example of the importance of State certification relates to the State's concern that public health, irrigation waters, and livestock and wildlife be protected from the pathogens present in domestic sewage. The State water quality management plan consequently requires, as a condition of State certification, that permittees who discharge sewage effluent meet a maximum concentration of 500 fecal coliform bacteria per 100 milliliters effluent limit. A second example relates to permits issued in the San Juan River Basin which is part of the Colorado River Basin. For these permits, New Mexico requires the inclusion, as required by water quality standards, of certain conditions necessary to implement State

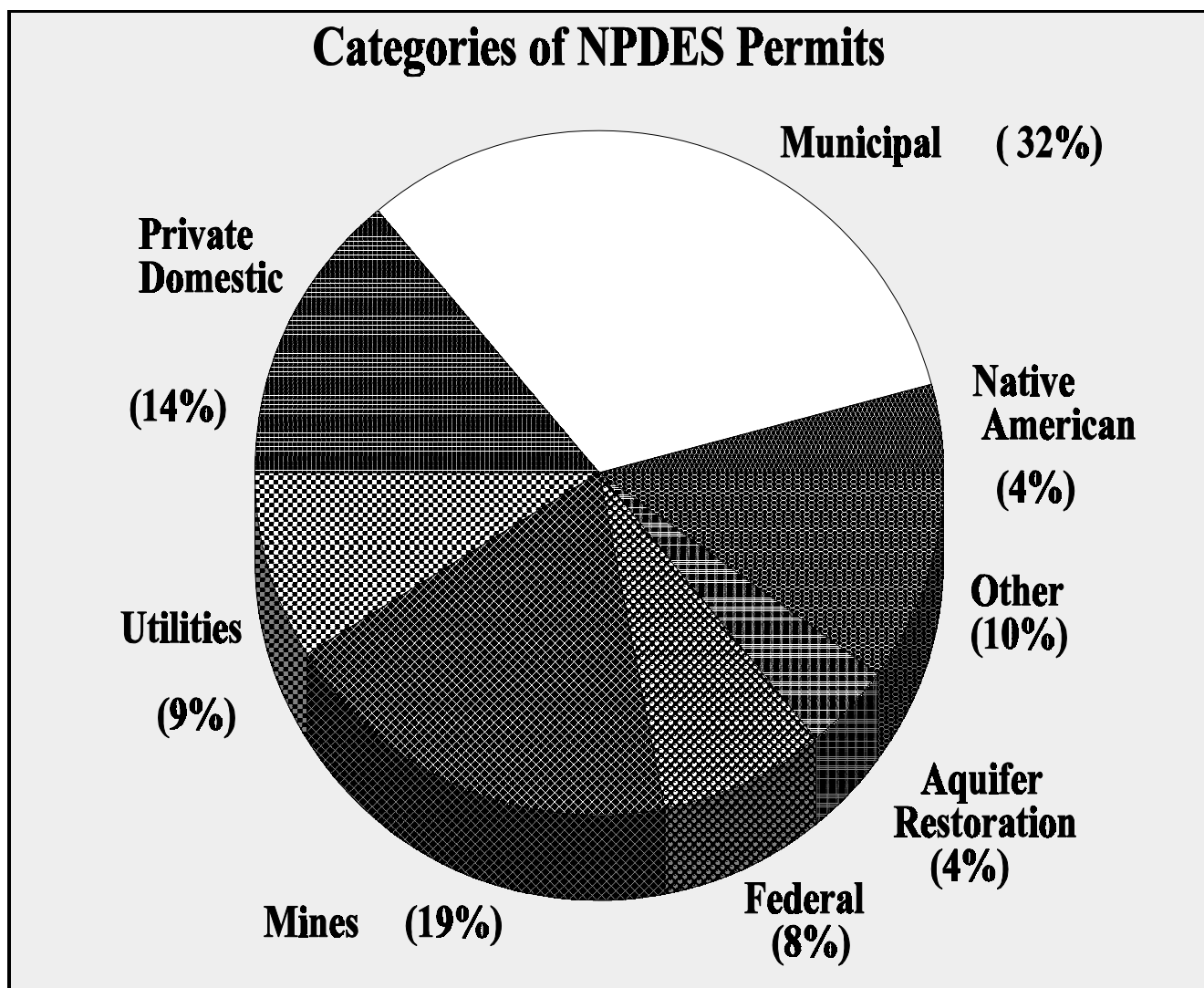


Figure 13. Distribution of NPDES Facilities by Activity.

surface water quality standards adopted to support the program and policy of the Colorado River Basin Salinity Control Forum. NMED also reviews proposed NPDES permits to ensure that 'no toxics in toxic amounts' are in the effluent. This review is in response to the long-standing Congressional mandate that toxic pollutants be controlled. To this end, NMED has required a number of permittees to control chlorine in their final discharges. Some permittees have also received water quality-based effluent limitations to control specific metals (e.g., Las Cruces has a copper limit and Silver City a vanadium limit.) These controls are necessary to implement the State's water quality standards.

Between October 1995 and September 1998, 4 major municipal, 1 non-municipal, five general NPDES permits and two sludge-only permits were reviewed for State certification.

State Administrative Assistance

NMED assists EPA in administering the NPDES permit program by reviewing self-monitoring data submitted by all NPDES permittees, providing program information and training to the public and permittees, and conducting inspections of permittees. NMED also assists EPA NPDES permit writers by providing technical information necessary to draft the permit. Information provided

includes: data on critical low-flow of the receiving waters, water quality data for the receiving stream, water quality standards applicable to the receiving stream, and other site specific information. Information provided by the NMED helps expedite the permit issuance process. NMED prepared an interim guidance document for implementation of water quality standards through NPDES permits. That document assists NPDES permit writers with developing water quality based effluent limits. It also provides the NMED with a "yardstick" for certifying NPDES permits in a consistent manner.

As required by EPA policy, all active permitted facilities classified as major,

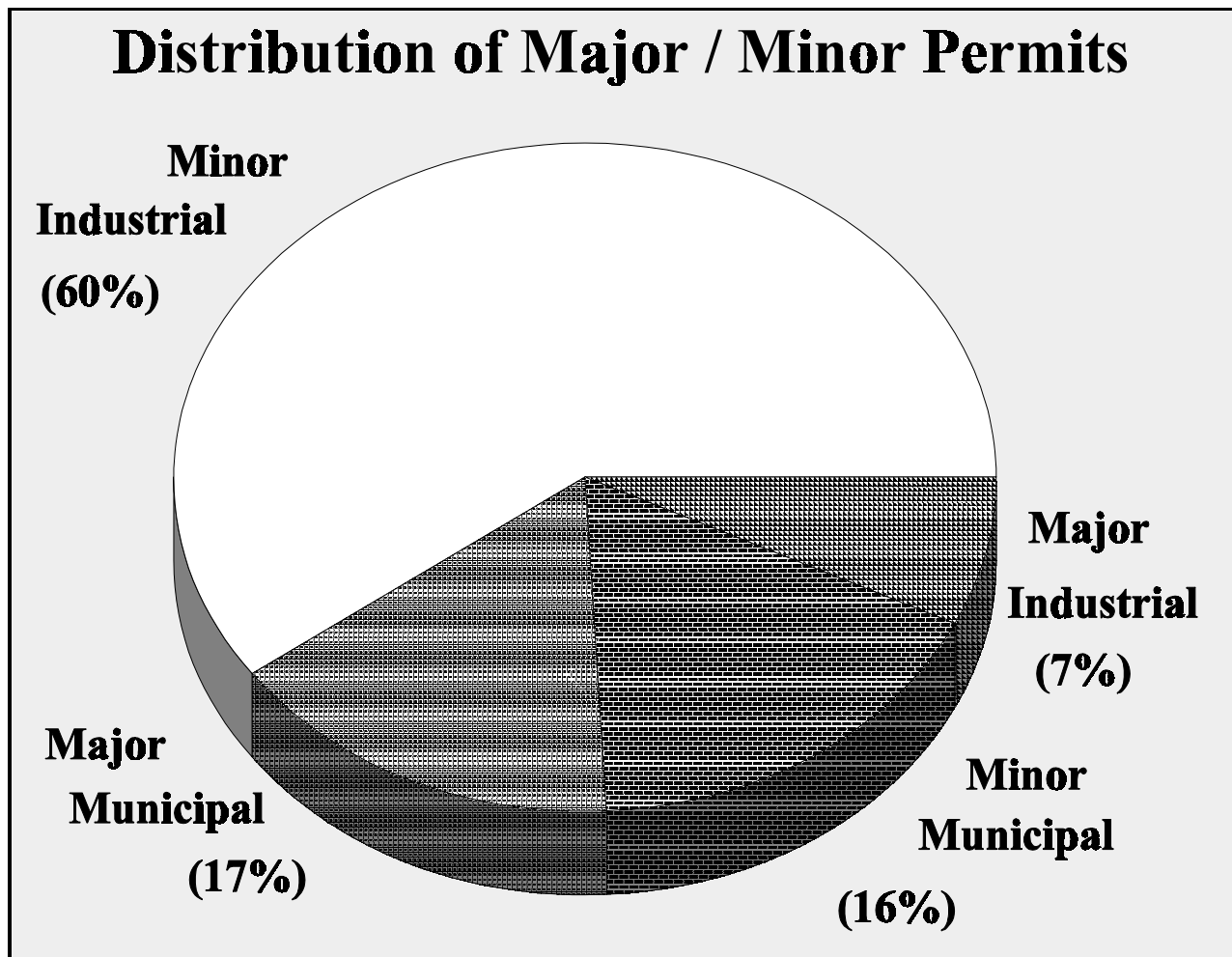


Figure 14. Distribution of NPDES Facilities in New Mexico by Size and Type.

whether municipal or non-municipal, should be inspected annually by either EPA or NMED. This effort is coordinated by the two agencies at the beginning of each year to minimize overlap. Since neither agency has resources to inspect every minor discharge each year, NMED uses a priority list to direct inspection efforts among these facilities. The priority list is based upon the date of last inspection; those facilities that have gone the longest without inspection receive higher priority.

NMED conducts four types of compliance inspections at permitted facilities as part of its contractual assistance to EPA:

- **Compliance Evaluation Inspection:** Designed to verify NPDES permittee

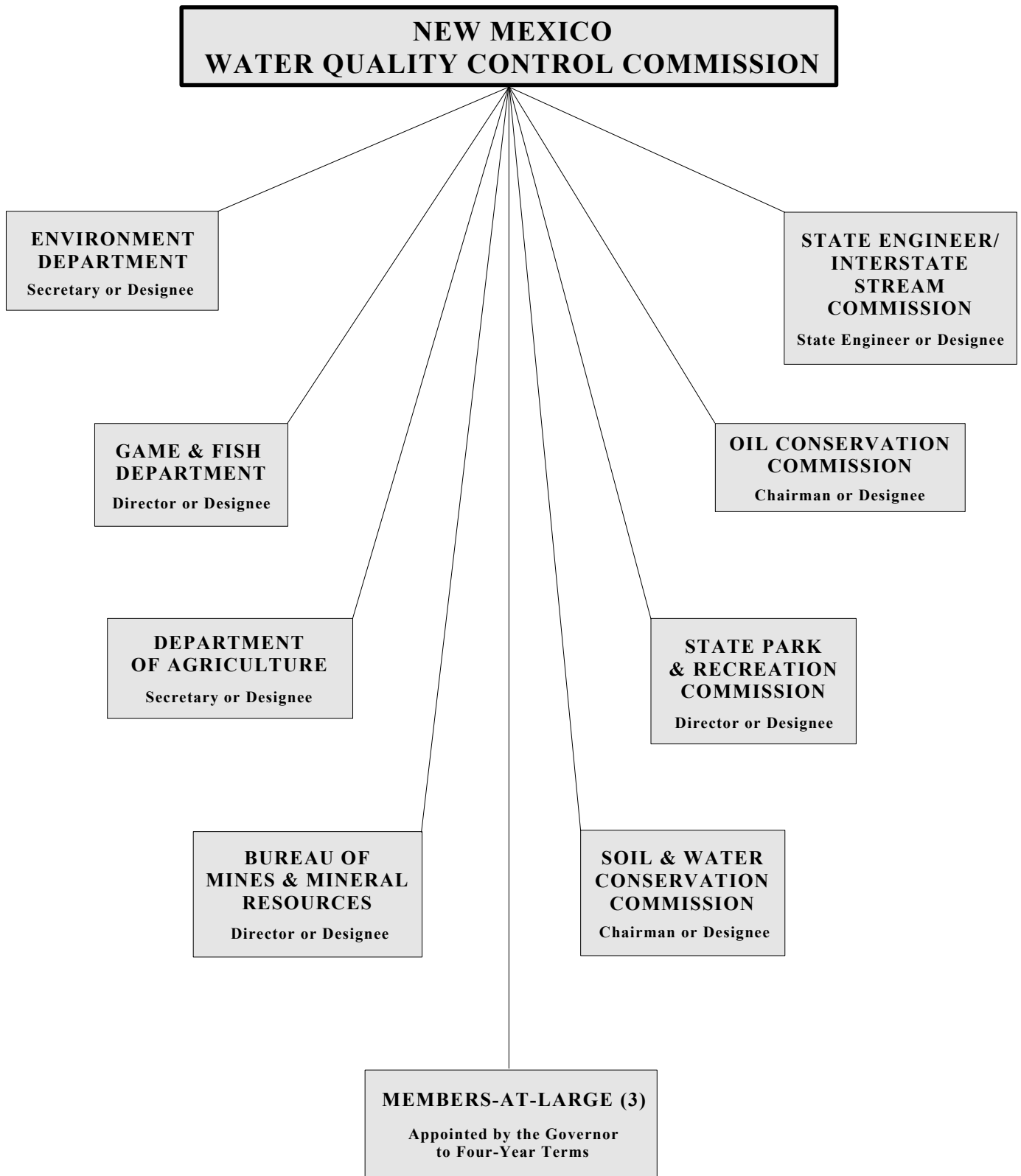
compliance with self-monitoring requirements and compliance schedules, the compliance evaluation inspection is based on record reviews and a visual examination of treatment facilities, effluent, and receiving waters.

- **Compliance Sampling Inspection:** In addition to the tasks and objectives summarized above, a compliance sampling inspection includes analysis of effluent quality. Effluent samples are collected and flow measurements are verified by NMED. Data from an inspection may be used to verify accuracy of the self-monitoring report or as evidence in enforcement proceedings. Samples of the receiving stream above and below the outfall are also collected in most instances in

order to evaluate the actual chemical impact of the effluent on the stream thus insuring the environmental efficacy of the NPDES permit.

- **Performance Audit Inspection:** A performance audit inspection is conducted primarily to evaluate the NPDES permittee's sampling and laboratory procedures. In addition to verifying the permittee's reported data and permit compliance through a check of the records, NMED staff actually observe the permittee going through the steps of the self-monitoring process from collecting samples and measuring flow through laboratory analysis, data processing, equipment calibration, and report preparation.
- **Reconnaissance Inspection:** A reconnaissance inspection is an

Figure 11. Composition of the New Mexico Water Quality Control Commission



abbreviated inspection often used to determine the general status of a facility or to focus on only one aspect (e.g., effluent quality) of compliance without performing a complete review. In the last biennial, the NMED developed two additional subcategories of reconnaissance inspections. These new categories are for facilities operating under the EPA general permits for storm water and for "sludge only" facilities ².

Between October 1995 and September 1998 NMED conducted 54 compliance evaluation inspections, 26 compliance sampling inspections, 8 reconnaissance inspections of individual NPDES permittees, 124 reconnaissance inspec-

tions of facilities discharging under a storm water general permit, and 12 reconnaissance inspections of confined animal feeding operations for EPA. In the same period EPA also conducted 46 compliance evaluation inspections. NMED also assisted EPA with follow-up to these inspections by providing requested information and participating in enforcement meetings between EPA and permittees.

Pretreatment

'Pretreatment' refers to treatment of waste before it enters a wastewater treatment plant in order to remove, or make less harmful, certain components of that waste. A municipality is responsible for regulating what comes into its wastewater treatment plant and ensuring that: (1) the effluent limits specified in its NPDES permit are met; (2) its sludge does not become contaminated; and (3) its treatment processes are not upset by incoming waste.

While most municipalities have

adopted some industrial waste ordinance, certain larger communities or communities with specific industrial users connected to their sewer systems are further required to adopt an EPA-approved pretreatment program. In general, industrial or sewer-use ordinances, unless incorporated into a formal pretreatment program under the NPDES permit program, are poorly enforced by the municipality. Pretreatment programs under the NPDES permit tend to be better enforced because the municipality has proper operation of the program as a requirement in its NPDES permit. Moreover, the pretreatment program itself is subject to EPA inspections and is, therefore, subject to EPA enforcement if it is not administered correctly.

Currently, five New Mexico communities - Albuquerque, Santa Fe, Las Cruces, Farmington, and Roswell - have EPA-approved pretreatment programs in their NPDES permits.

² The term *sludge-only facilities* refers to treatment works treating domestic sewage that are not otherwise required to obtain an NPDES permit for discharges of effluent into a "waters of the United States". Sludge-only facilities are required to meet federal regulations adopted under CWA § 405 that are published in the Code of Federal Regulations (40 CFR 503). Examples of sludge-only facilities in New Mexico are Clovis and Hobbs.

Present and Emerging Concerns

Sewage Sludge

On February 19, 1993, the EPA published a new rule for sludge disposal, codified at 40 CFR 503. The new regulations are comprehensive in their approach to environmental protection. They increase the responsibilities of sludge generators in regard to the disposition of their sludge. The regulations are also designed to encourage beneficial reuse of the sludge. Coordination of the federal regulation with state ground water protection regulation is ongoing.

The New Mexico Solid Waste Management Regulations also govern sludge disposal at landfills. Sludge disposal is allowed in landfills provided it meets certain criteria. These criteria should ensure environmentally safe disposal of sludge at landfills.

A demonstration project by the US Forest Service and the City of Albuquerque won an EPA award. The project demonstrated the value of land applying treated sludge or "biosolids" in

rangeland reclamation. Improved vegetative cover as well as increases in desirable plant species and decreases in undesirable species was demonstrated. A separate but similar demonstration project showed essentially no runoff from sloped lands that had been treated with biosolids. Control of runoff reduces soil erosion which may adversely impact future land use and prevents sedimentation of nearby streams.

Overall, in 1998, 25% of the biosolids generated by New Mexico's wastewater treatment facilities was beneficially reused, mainly due to the aforementioned demonstration projects. Several smaller cities are beneficially reusing 100% of their biosolids. Increased compliance with sludge regulations and improvements in sludge treatment encouraged by the regulations is providing communities greater opportunities to dispose of their biosolids in beneficial ways rather than in a landfill. Increasing the beneficial reuse of biosolids remains an important aspect of the State's wastewater program.

Storm Water

The federal Water Quality Act (WQA) of 1987 added § 402(p) to the CWA. Section 402(p) of the CWA requires the EPA to establish phased and tiered requirements for storm water discharges under the NPDES program. In 1990, EPA promulgated regulations which established permitting requirements, including deadlines, for certain storm water discharges associated with industrial activity, and discharges from municipal separated storm sewer systems (MS4s) serving a population of 100,000 or more. These are commonly known as phase I facilities. Most other dischargers of pollutants in storm water to navigable waters from point sources (phase II facilities which include commercial, retail and institutional facilities, construction activities under five acres, and MS4s serving populations of less than 100,000), have until August 7, 2001 to submit NPDES permit applications.

To this end, EPA originally developed a four-tier approach to permitting storm

water discharges. The following is a summary of EPA's risk-based permitting strategy:

- Tier I:** Minimum baseline general permit for most discharges;
- Tier II:** Watershed permitting - target facilities within adversely impacted watershed for individual or watershed-specific permits;
- Tier III:** Industry specific permitting - industrial categories will be targeted for individual or industry-specific general permits; and
- Tier IV:** Facility-specific permitting - target individual facilities causing particularly severe impacts for individual permits.

This approach has resulted in the issuance (by EPA) of a very limited number of individual permits, two baseline general permits (one for five or more acre construction activities, one for all other phase I industrial facilities) in 1992, and one industry specific multi-sector permit which covers 29 industrial groups, in 1995. The construction general permit expired in 1997 and was re-issued in 1998. The baseline industrial general permit expired in 1997 and has been replaced with the multi-sector general permit which was modified extensively in 1998 and now covers 30 industrial groups. EPA has yet to issue a pending MS4 permit to the City of Albuquerque, which is the only New Mexico community that currently meets the phase I criteria.

This program has significantly increased the burden on state, and to some extent, local government agencies, especially in the area of public outreach regarding permitting, implementation of appropriate storm water runoff control practices, and other requirements of this program. In addition, MS4 operators are required to establish a comprehensive storm water management program to control pollutants from the MS4 which includes controls on the quality of storm water discharges from industrial (including construction) sites, identification and prohibition of illicit

discharges to the MS4, and controls of spills, dumping and disposal of materials other than storm water into the MS4.

However, it is anticipated that the reduction of pollutant loads in storm water runoff from facilities regulated under this NPDES program, in combination with efforts to reduce other diffuse sources of water pollution, such as through State Nonpoint Source Control Programs developed under § 319 of the CWA, should ultimately help alleviate a significant cause of water quality impairment in New Mexico.

Discharge of Toxic Pollutants

The United States Congress, in its 1972 adoption of the Clean Water Act, stated "... it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited" [CWA § 101(a)(3)]. The Congress in 1987 amended CWA § 303(c) requiring that each state adopt standards for any of a specific list of toxic pollutants, "...the discharge or presence of which in surface waters can reasonably be expected to interfere with the designated uses adopted by the state." These standards must be numeric criteria if such criteria have been published pursuant to CWA § 304(a). If no criteria have been published, standards must be based on biological monitoring or assessment methods. The State completed its adoption of water quality standards to meet the CWA § 303(c) requirements in 1991 and these standards were subsequently approved by EPA.

Adoption of numeric standards for toxic pollutants led to greater emphasis at both the state and federal levels on "water quality-based permitting." Water quality-based permitting, simply stated, is the development of NPDES permit limits necessary to assure that the water quality standards of a receiving stream are protected. Table 13 lists all current individual NPDES permits in New Mexico including the pollutants that are regulated in each permit and the basis of the effluent limitation. The table demonstrates the increase in water quality-based effluent limits in permits issued since the 1987 amendments to the

CWA. In particular, after 1987 the number of permits with chlorine, a toxicant to fish, increases dramatically. Subsequent to the adoption of the 1991 water quality standards, the number of water quality-based limits addressing other pollutants in NPDES permits has greatly increased.

As a result of this "water quality-based" permitting strategy, the workload on both EPA and the State in proposing and certifying NPDES permits has increased dramatically. This increase is primarily due to the increased modeling of the effects of a permittee's discharge on the receiving stream (i.e., determination of potential to cause a water quality standard violation) and appeals by permittees suddenly faced with more stringent effluent limits in their renewed permits. It is expected that water quality-based permitting will continue to be controversial.

Contaminated Aquifer Remediation

The NMED underground storage tank program has identified a number of leaking underground storage tanks that have contaminated ground water several of which have also threatened surface waters. Rapid containment is often used at high-priority sites to reduce spreading of the contaminant plume, thereby protecting water supply wells, sewer collection lines, surface watercourses, homes and other structures from contamination. Containment and some remediation technologies include pumping, treating, and disposing of treated ground water. Disposal options are varied and site-specific, but may include reinfiltration, discharge to a sanitary sewer, or direct discharge to a watercourse. Recommended remediation strategies emphasize cleanup of the source area and include a variety of technologies mentioned in an earlier section of this report, many of which are *in situ* technologies.

Discharge to a sanitary sewer must be made with permission of the sewer authority which has the right to control or prohibit such discharge. The sewer authority, upon acceptance of the

wastewater, becomes responsible for any effect that it might have on their system and any pollutants which 'pass through' their facility and effect the receiving stream. Some communities have elected to accept this kind of discharge conditionally, while others have

expressly prohibited it.

In order to legally discharge directly to a watercourse, an NPDES permit must be secured prior to initiation of the discharge. Frequently, hydrologic containment procedures and pump tests

must be initiated sooner than an individual permit can be issued. In an attempt to resolve this problem EPA issued a general NPDES permit for this category in 1998 to allow discharge more expeditiously.

COMMUNITY WASTEWATER FACILITY CONSTRUCTION GRANTS/LOANS

The wastewater construction grants program has been phased out and grants have not been offered since December 31, 1988. Prior to this date, the State and federal governments provided grants to communities for planning, design, and construction of wastewater treatment facilities to reduce and prevent water pollution and meet enforceable requirements of the federal Clean Water

Act. NMED administered this program under delegation from EPA. In conformance with EPA regulations governing federal funding for treatment plant construction, NMED prioritized construction of treatment works which more directly reduced or prevented water pollution over construction of interceptors and collection systems.

NMED also administered State matching funds for the federal construction grants program as well as special State appropriations for wastewater treatment. The wastewater construction program has been replaced by the **State Revolving Loan Program**, discussed later in this chapter.

DREDGE-AND-FILL PROGRAM

Dredge-and-fill activities, such as channelization, diversion and levee building, are regulated through permit by

the United States Army Corps of Engineers. A discussion of how New Mexico utilizes this program in water

pollution control is presented below under the **State Nonpoint Source Water Pollution Management Program**.

STATE WATER QUALITY PROTECTION REGULATIONS

Spill Cleanup

The State spill cleanup regulation, §1203 of the WQCC Regulations, requires prompt notification to NMED or, as appropriate, the New Mexico Energy, Minerals and Natural Resources Department's Oil Conservation Division (OCD) of any unpermitted discharge or spill potentially affecting ground or surface water. This regulation also requires the discharger to take corrective action to remediate the problem. Section 1203 is routinely employed to effect cleanup of spills to surface water, often in conjunction with § 2201 of the regulations, which prohibits disposal of refuse in a watercourse.

Discharges to Surface Waters

State regulations for discharge to

surface waters (Subpart II) are another mechanism for surface water pollution control. These regulations set discharge limits for biochemical oxygen demand, chemical oxygen demand, settleable solids, fecal coliform bacteria, and pH. The WQCC has, to date, determined that the federal NPDES permit program will be the primary mechanism for regulating point source discharges to surface waters in New Mexico. The WQCC has historically opposed the 'dual regulation' that would occur if the State were to have a separate State discharge permit. Accordingly, the WQCC regulations apply to discharges with an NPDES permit only if the discharger has not corrected violations of NPDES permit limitations within thirty days after receipt of written notification of such violations from EPA. The State regulations are also

the means for regulating dischargers who have applied for but have not yet been issued NPDES permits and dischargers with expired NPDES permits who have not yet applied for renewal.

A general permit was issued by the EPA in 1993 which controls discharges from concentrated animal feeding operations in New Mexico. Under the federal permit, no discharges are allowed except during certain major rainfall events. This permit requires the retention and proper disposal of wastewater and contaminated runoff from large cattle and dairy feeding operations, as well as horse, swine, and poultry feeding operations and other large concentrated animal feeding operations. Currently there are approximately fifty facilities permitted under the EPA's general permit.

Utility Operator Certification and Facility Operations

Regulations for classification of utility systems and certification of utility operators (20 NMAC 7.4) were adopted by the WQCC in 1974 and subsequently

amended in 1993 in response to the requirements of the New Mexico Utility Operators Certification Act (§§ 61-30-1 et seq., NMSA 1978). The regulations

classify public water and wastewater utility systems according to the population served and technical complexity of the utility system. These

Table 13. NPDES Permits in NM

	NPDES	Year					Chl-	Fec																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
--	-------	------	--	--	--	--	------	-----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

● = Indicates a numeric water quality based NPDES effluent limitation.

○ = Indicates an NPDES requirement to monitor & report the concentration but for which there is no effluent limitation. All monitoring requirements may not be shown.

■ = Indicates a technology based effluent limitation (BPT/BAT or BPJ)

◆ = Indicates an effluent limit based upon the NM Water Quality Management Plan

BOD = Means either Biochemical Oxygen Demand (5 day) or Carbonaceous Biochemical Oxygen Demand (5 day).

COD = Chemical Oxygen Demand

Chlorine - Note most water quality based effluent limits are "total residual chlorine." Some technology based limits are "free available chlorine."

O & G = Oil and Grease

WET = Whole Effluent Toxicity Limitation

Salt = Per policies established by the Colorado River Basin Salinity Control Forum.

Ra = generally means Ra 226 + 228 but some permits require only Ra 226

Other = this category covers uncommon parameters (e.g., sulfite that occurred in only one permit or as in some cases requirements to analyze a number of organic pollutants).

Effluent limitations are listed if they occur anywhere in a permit. In permits where there are multiple outfalls, all limits may not apply at all outfalls. In some cases the effluent limitation may not be in effect if a permittee has been allowed a schedule of compliance or has seasonal limits as provided under sections 1106.D and 1105.B. (respectively) of the New Mexico *Standards for Interstate and Intrastate Streams*. It should also be noted that for some facilities not all water quality based limitations are applicable at all times. For example, Chino Mines' permit generally prohibits any discharge except in certain defined instances involving storm events; when discharges are allowed the water quality based effluent limits are applicable.

Table 13. NPDES Permits, con't

[illegible]

Table 13. NPDES Permits, con't

Facility Name	NPDES Permit #	Year Issue	BOD	TSS	pH	COD	Chlorine	Fec Col	O&G	NH3	NO3	TKN	P	Salt	Al	As	Ag	B	Be	CN	Co	Cd	Cr	Cu	Fe	H-3	Hg	Mn	Mo	Ni	Pb	Ra	Se	U	V	Zn	WET	BIO-MON.	D.O.	Chlor-dane	Gross alpha	Temp	Sett Solids	Other		
BIA Jicarilla	NM0026751	1989	■	■	■	■	●	◆						○											■	○	○	○	○	■		○		○	○							○		■		
Delta Env. - Duke	NM0029807	1989	■		■	■	○					○			■	○	○	○	○		○	○	○	○	■		○	○	○	○	■		○		○	○							○		■	
Delta Env. - Sham.	NM0029688	1989	■	■	■	■	○			●	●				○	○	○	○	○		○	○	○	○	■		○	■	○	○	■		○		○	○						○		■		
Rancho Ruidoso	NM0029238	1989		■	■		●	◆																																						
Village Supermkt.	NM0029785	1989			■	■														●		●			■																					
Armendaris RV	NM0029777	1990	■	■	■		●	◆																																						
PNN Reeves	NM0000124	1990		■	■		■		■																																	■				
Rio de Arenas	NM0027375	1990	■	■	■		●	◆																																						
United Water #2	NM0027987	1990	■	■	■		●	◆		■					○	○	○	○	○	○	○	○	○				○					○	○	○		○	○	○						○		
Siemens	NM0029394	1991		■					■																																					
Chino Mines	NM0020435	1993	■		■											●	●		●				●	●	●							●	●	●		●	●									
DOE/JC - LANL	NM0028355	1993	■	■	■	■	●	◆	■	○	○		■			●	●	■	●				●	●	●	■	●					●	●	●		●	●								■	
Marquez Develop.	NM0028215	1993														●	●		●				●	●	●							●		●		●										
Molycorp	NM0022306	1993		■		■	●								●	■	●		○	●	○		●	●	●	■		■	■			●				■			○	●						■
NTUA Shiprock	NM0020621	1993	■	■	■		●	◆						○																																
Quivira	NM0020532	1993		■	■	■																																								
Rio Grande Res.	NM0028100	1993		■	■	■		◆							●			●			●	●	●	●			●					●	■	■	■	■										
Uranium King	NM0028169	1993	■	■	■	■		◆																								■	■		■	●	■									
Utah International	NM0028193	1993		■	■									○											■																				■	
NMGFD Glen.	NM0030163	1994		■	■					●	○	○	○	○																													○		■	
NMGFD Lisboa	NM0030121	1994		■	■					○	○	○	○	○																													○		■	
NMGFD Parkview	NM0030139	1994		■	■					○	○	○	○	○																													○		■	
NMGFD Red Riv.	NM0050147	1994		■	■					○																																	○		■	
NMGFD Rock	NM0030155	1994		■	■					○																																	○		■	
NMGFD Sev. Spr	NM0030112	1994		■	■					○	○	○	○	○																													○		■	
PNN San Juan	NM0028606	1994		○	○		○		○		○	○	○		○	○	○	○	○	○	○	○	○	○	○		○	○	○		○		○		○	No discharge is allowed (see footnote)								○		
P&M Ancho	NM0030180	1995		■	■		●		○						●	●	●	●	■	●		●			●	●	●						●	●		●								■		
Santa Teresa	NM0030201	1995	■	■	■		●	◆																			●											○								

regulations require that operators be certified at appropriate levels of proficiency, depending upon system classification. The WQCC has assigned responsibility for implementing the Certification Act to NMED. The program receives general guidance from the New Mexico Utility Operators Certification Advisory Board.

Certification

Over 2,000 water and wastewater operators were certified by NMED in 1998. Because many operators hold both water and wastewater certificates, over 2,700 certificates are in effect today. The number of examinations for certification and recertification given on an annual basis has gradually increased to over 1,000. This increased level of testing is attributable to the extension of the operator certification requirements and the increased level of enforcement activities undertaken in recent years. As enforcement continues, the increase in the number of persons testing for certification is also expected to continue.

During this reporting period, NMED continued implementation of regulations approved by the WQCC in 1993, which extended the requirement for certified operations personnel to all public water and wastewater facilities. Previously, the requirement only applied to systems serving a population of 2,500 or more. The regulations included phased implementation dates and provisions for certifying existing operators without examination (although training and working experience requirements are not waived). As a result, approximately 1,500 small public water and wastewater utilities, previously exempted from regulation, are required to have certified operators. The total number of certified water and wastewater utility operators is expected to double from 1993 figures, as more utilities gain full compliance. Working with the Utility Operators Certification Advisory Board and other experts, NMED and validate examinations for levels of utility operator certification. NMED promoted additional operator training sessions and provided more examination opportunities

to meet the demand.

It is expected that the Certification Act Amendments will improve the operation and maintenance of small wastewater utilities which have historically exhibited high rates of noncompliance both in New Mexico and nationally. This statement is based on EPA studies that have documented operational staff expertise and staffing levels as leading factors limiting facility performance.

Training Activities

Through funding under the federal Safe Drinking Water Act, the CWA, and the State Water Conservation Fund Act, statewide training activities have increased in the past few years. NMED has also continued to fund the New Mexico State University Water Utilities Technical Assistance Program. This program conducts specialized workshops in the various geographic regions of the State and provides technical assistance to operators' "short schools" sponsored by the New Mexico Water and Wastewater Association. The program also provides essential on-site technical outreach assistance and consultation for the resolution of municipal water and wastewater facility problems related to operations. In 1996 and 1997, NMED continued its productive coordination with this training program in both the performance of diagnostic inspections and the provision of technical assistance.

Currently, more of the State's larger municipalities are developing in-house training programs which require NMED review and approval. NMED staff also participate in and conduct several training sessions offered throughout the year. These include workshops on approved NPDES analytical procedures, the NPDES permit program, and on other regulatory issues such as sludge management and biomonitoring.

Facility Operations

NMED reviews the operations and maintenance manuals prepared for new wastewater projects funded through the federal and State programs administered by the NMED Construction Programs Bureau. These reviews help ensure that

the project's consulting engineer has provided necessary training for facility personnel, that each community will be informed of applicable State and federal water pollution control laws and its responsibility as a grant recipient to comply with these laws, and that staffing plans will be adequate for the size and complexity of the facility.

NMED has participated in several operations and management evaluations in conjunction with EPA since 1986. These inspections are conducted to evaluate NPDES permit compliance as well as the operations, maintenance and financing of wastewater facilities built with federal and State funds. In recent years, NMED has taken a lead role in these evaluations in an effort to address the inadequate operations and maintenance of wastewater treatment facilities. Such inadequacies are often a major factor in permit noncompliance.

Enforcement

Compliance with the Certification Act and Utility Operator Certification Regulations is first sought on a voluntary basis through a negotiated 'Schedule of Compliance.' If, after repeated efforts to obtain voluntary compliance, a satisfactory schedule is not negotiated or a community consistently fails to meet the provisions of its schedule, compliance may be pursued through the courts or administrative penalties may be sought through the WQCC.

In 1996 and 1997, compliance surveys were conducted on 136 public water and wastewater facilities. Of these, 90 facilities (66%) were found to be in complete compliance with the regulations. Another 20 facilities (15%) were in marginal compliance, i.e., certified operators were employed but not in sufficient numbers to cover all shifts during which the facilities were in operation. About half the cases of non-compliance and marginal compliance are temporary, and are caused by the movement of certified operators from one facility to another.

Facilities found to be below necessary staffing are allowed to operate under negotiated compliance schedules

designed to bring them into total compliance by specified dates. NMED is currently monitoring voluntary compliance schedules with several communities found to be noncompliant in surveys conducted in 1998. These systems include municipal, privately owned, as well as State and federal facilities.

EPA has included operational and staffing deficiencies as items which must be rectified under its administrative orders issued against noncompliant NPDES permittees. This has allowed compliance with State certification requirements to be incorporated directly into enforcement actions designed to

address instances of poor permit performance resulting from unsatisfactory facility operations.

Future Directions and Needs

Full implementation of the amended Utility Operator Certification Regulations requires continuing efforts to identify all the small utility systems covered and encourage them to obtain certification for their operators. The number of public drinking water systems covered by the regulations grew from under 100 to more than 1,300. Some regulated public wastewater utilities are not fully identified because they are not permitted

under either the federal NPDES system or the State's Ground Water Discharge Plan system. Improvements in data tracking for all systems and operators are being implemented. The large increase in the number of certified water and wastewater utility operators will continue to expand the need for more operator training in the State. Reauthorization of the federal Safe Drinking Water Act in 1996 resulted in national standards for utility operator certification which will have some impact on the program in New Mexico. Similar provisions are expected within the reauthorization of the Clean Water Act.

State Revolving Loan Program

Through enactment of the Wastewater Facility Construction Loan Act (§§ 74-6A-1 et seq., NMSA 1978), which was signed into law in 1986, the New Mexico Legislature created a revolving loan fund. The purpose of the Loan Act "is to provide local authorities in New Mexico with low-cost financial assistance in the construction of necessary wastewater facilities through the creation of a self-sustaining revolving loan program so as to improve and protect water quality and public health." Regulations (20 NMAC 7.5) pursuant to the State Loan Act have been adopted by the WQCC. In addition, the State has developed policy,

procedures, guidelines, and a priority ranking system for use in administration of the State loan program.

The revolving loan fund is administered by NMED. State money appropriated to the Department to carry out the provisions of the Loan Act (i.e., loans to local authorities) may be used to match federal funds allocated to New Mexico pursuant to the CWA. Federal capitalization grants and loan principal and interest repayments are deposited into the fund. Proposed construction projects are prioritized and then funded based on the availability of federal and State funds. In 1993 the WQCC lowered

the base interest rate for new loans to 4%, and included provisions for 3% interest and 0% interest loans for hardship communities which meet certain criteria. The base interest rate for Fiscal Year 1998 remains four percent.

New Directions: Loans under this program are now available to assist local governments and other sub-state entities which implement BMPs to protect water quality from nonpoint source impacts. NMED is developing procedures to include nonpoint source and Brownfields type projects, along with point source projects, on an integrated priority list for loan funding.

Colonias Wastewater Construction Grant Program

One of the more serious environmental concerns facing New Mexico is along its southern border with the Republic of Mexico. Rapid industrial growth driven by unprecedented trade opportunities, along with burgeoning concentrations of people in the neighboring large cities of Ciudad Juárez, Mexico and El Paso, Texas, have created serious conditions in nearby New Mexico. Congestion, uncontrolled urban development, and lack of basic environmental health and sanitation facilities have become significant problems in many communities on both sides of the border.

In the United States, many unincorporated communities or

settlements, called colonias, have sprung up adjacent to established towns and cities along the border. Colonias are home to several hundred-thousand people in Texas and at least 40,000 in New Mexico. They are characterized by substandard housing, inadequate roads and drainage, and inadequate or non-existent environmental infrastructure systems such as potable water supplies or regulated wastewater treatment facilities. Currently less than seven percent of New Mexico's colonias are served by licensed and monitored wastewater treatment systems. The rest of the colonias are served by on-site cesspools, septic tanks with leach fields or outhouses.

Approximately 20% of the colonias in New Mexico have no water supply systems.

Many of the colonias were originally settled over 200 years ago and represented established and stable communities. However, the rapid growth and development in the border area over the last two decades has brought significant change to the population dynamics of the region. The majority of current colonia inhabitants are first and second-generation low-income migratory families of Mexican descent. Parts of six New Mexico counties are within the 100 kilometer (62-mile) designated border area. This includes Otero, Doña Ana,

Sierra, Luna, Grant and Hidalgo counties.

Many colonias, with their concentrations of people and concurrent health and environmental concerns, occur along the 44 mile stretch of the Rio Grande Valley from Las Cruces to the El Paso/Ciudad Juárez metropolitan area. Another cluster of colonias is around Hatch. North Hurley, near Silver City, also qualifies as a colonia.

The State of New Mexico through NMED is addressing part of the complex colonias issue with the administration of two federal grant programs provided through the EPA. The Colonias Wastewater Treatment Construction Grant Program brings up to \$10-million into the border region for planning, construction or improving facilities which serve New Mexico's colonias. The program is eligible to any identifiable unincorporated community, or a county, municipality, district or other political subdivision of the State acting on the behalf of a colonia. To be eligible, a community must be situated within a hundred kilometers of the United States-Mexico border, be designated by the State or county in which it is located as a colonia on the basis of objective criteria, including lack of an adequate potable water supply, lack of adequate sewage systems and lack of decent, safe and sanitary housing, and be able to prove that it was in existence before November 28, 1990.

New Mexico has allocated funds to eighteen colonias to date for wastewater treatment construction or expansion. It is anticipated that the construction/expansion phase of the grants program could take about five years from initial engineering studies to final system startup. The focus of the construction projects is to meet the existing requirements of the colonias for adequate and safe wastewater treatment systems as of November 28, 1990. Individual colonia may be currently eligible for a grant for the design and construction phase of their project. Eligible costs include planning, design and construction, land acquisition for sewage treatment plants, interceptors, lift stations, collection systems and on-site systems for indigent families.

Along with the 1993 colonias grant, NMED received an additional \$10 million of federal funding for the Fiscal Year 1994 to complete the projects initiated with the allocations already made. The New Mexico Legislature, Laws 1995, Chapter 222, appropriated \$2 million as the required match to the second federal appropriation. In addition, since 1990, Legislative Special Appropriations of \$3.8 million have funded water and wastewater projects in the Colonias areas and the neighboring communities.

The enthusiastic response from the colonias has indicated that these

communities support the efforts made to improve delivery of wastewater treatment services. Construction is completed at Mesquite, Hatch, Rodey and Doña Ana Village. Construction is currently in progress for Anthony, North Hurley and Rincon. Facility plans are completed for Berino, La Union, Chamberino, Vado, Del Cerro, La Mesa, San Miguel, San Pablo, and Salem/Ogaz.

Better enforcement of State and county subdivision regulations should help control colonia establishment and growth. The 1993 New Mexico Legislature, through Senate Memorial 50, designated NMED to assist in a study and investigation of the proliferation of illegal subdivisions, unregulated land division and colonias in New Mexico. The task force authorized by this legislation submitted a report to the Legislature concerning the effectiveness of the New Mexico Subdivision Act in protecting the public health and welfare and recommended legislation to address deficiencies in the current law. Chapter 212, Laws of 1995, amended the subdivision Act and went into effect June 30, 1996. The Legislature has funded a \$97,000 Doña Ana Wastewater Master Plan. NMED is working with other federal and State agencies in order to obtain coordinated funding for projects to resolve needs for wastewater collection and treatment in the border area.

STATE ENFORCEMENT

In recent years the State has taken fewer surface water enforcement actions against larger NPDES permittees than in the past for two principal reasons. First, fewer facilities require enforcement, as the construction grants program and State special appropriations have funded new wastewater treatment plants or major modification for most of the communities in New Mexico. While the grant program has been phased out and replaced by a revolving loan program, the program was very successful in correcting many of the problems which led to noncompliance. Secondly, EPA has improved enforcement of its NPDES permit program. Consequently, rather

than duplicate effort, NMED now places more emphasis on assisting EPA with its enforcement program.

State enforcement may be an administrative or a judicial action. Administrative enforcement may be through an 'assurance of discontinuance' negotiated between the State and the discharger who is in violation of WQCC regulations. An assurance typically sets forth actions a discharger must take and a timetable for achieving compliance with the regulations. An assurance may also contain interim effluent limitations covering a specified time period. An assurance of discontinuance must be formally approved by the WQCC. In

1993 the New Mexico Legislature amended the New Mexico Water Quality Act. Among the many amendments, enforcement powers were increased by establishing administrative penalty provisions, higher maximum financial penalties and criminal provisions.

Judicial action involves court proceedings. The judicial means commonly used are 'stipulated judgments' and 'judgments by consent' whereby the terms of the judgment are negotiated between NMED, on behalf of the WQCC, and the discharger as approved by the State District Court. NMED has also negotiated out-of-court settlement agreements. The State could also file a

Citizen's Suit pursuant to CWA § 505 to enforce an NPDES permit.

Present and Emerging Concerns

In recent years the State's surface water enforcement problems have been primarily in the area of illegal disposal of refuse in a watercourse. This includes the deposition of trash, septage disposal, and solid waste.

Septage disposal and disposal of other wastes hauled by vacuum trucks continue to be a problem statewide. The 1989 New Mexico Solid Waste Management Regulations (3) banned disposal of liquids in solid waste landfills. Illegal disposal in watercourses of materials commonly carried by septage disposal companies continues to be a concern. Another problem regarding septage disposal in New Mexico may result from EPA's recent technical sludge management regulations. EPA's new

technical regulations consider land application of septage to be a form of disposal only, and require treatment in addition to land application. Strict implementation of EPA's proposed technical regulations further compounds the problem of illegal septage disposal by adding the new dimension of federal requirements.

The discharge of raw sewage from sewer collection lines that break or overflow due to poor maintenance or location continues to be of great concern. NMED frequently receives reports that raw sewage entered a stream when a sewage collection line broke. These breaks often could have been prevented by better siting or through a maintenance program which would have identified the potential problems. In recent years, some communities have made considerable progress in minimizing the number and

severity of their overflows. For example, the City of Farmington, in response to NMED's increased attention to spills, installed high water alarms with telemetry capabilities at critical places in the collection system. These preventative devices and the increased sewer line maintenance were a direct response to regulatory attention.

The amendments to the spill reporting requirements of WQCC regulations (§ 1203), effective in December 1987, have resulted in increased awareness and reporting of spills. Due to these amendments, NMED is now better able to address spills because it can include a prevention program as part of the required corrective action report. Thus, corrective action may not only include an immediate fix but a longterm plan to correct underlying causes of failure such as maintenance or location.

GAME AND FISH DEPARTMENT PROJECTS AND INITIATIVES

Legislation formally establishing the Conservation Services Division of the Game & Fish Department (G&FD) (17-1-1 NMSA 1978) requires that the division "*communicate and consult with federal and other state agencies and local governments and communities, private organizations and affected interests responsible for habitat, wilderness, recreation, water quality and environmental protection to ensure comprehensive conservation services for*

hunters, anglers and nonconsumptive wildlife users." To meet this legal mandate, the Technical Guidance Section of the Division conducts project review (pursuant to the National Environmental Policy Act, Fish and Wildlife Coordination Act, Clean Water Act - § 404, Wildlife Conservation Act, New Mexico Mining Act and other laws), and provides written comments and coordination with project proponents. The goal of this review, comment and

coordination is to ensure that fish and wildlife habitats are protected through avoidance of impacts. In the event of probable impacts, mitigation recommendations are made. The Department has advocated promulgation of water quality standards to protect fish and wildlife, and has been involved in numerous projects in all basins of the state in an effort to protect and, where possible, enhance fish and wildlife habitat.

THE STATE NONPOINT SOURCE WATER POLLUTION MANAGEMENT PROGRAM

The New Mexico Nonpoint Source Management Program (4) was adopted by the WQCC and approved by the Governor prior to submittal to EPA on September 12, 1989. The program was subsequently approved by EPA on September 26, 1989. The revised and updated program was submitted to EPA on August 8, 1994 and subsequently approved. The program is currently in the process of being revised.

Since approval of the program, as the lead nonpoint source (NPS) management agency for New Mexico, NMED has coordinated largely voluntary efforts and

activities within the State through the Surface Water Quality Bureau (SWQB), and has made significant progress in reducing known NPS pollution concerns while promoting pollution prevention on a broad scale.

The Nonpoint Source Management Program contains a series of implementation milestones which were designed to establish goals while providing a method to measure progress and success of the program. Implementation itself consists of extensive coordination of efforts among NPS management agencies, promotion

and implementation of best management practices, coordination of demonstration projects and watershed projects, inspection and enforcement activities, consistency reviews and education and outreach activities.

Best Management Practices

Nonpoint source controls are typically established through the implementation of management practices which can be either structural or nonstructural in nature. Structural practices can be represented by diversions, sediment

basins, animal waste lagoons, fencing for the management of livestock, terraces, rock check dams or other constructed means of reducing impairments to surface and ground waters. Nonstructural practices are thought of as conservation practices related to the way in which we manage our resources. These nonstructural practices can be represented by the timing and rate of fertilizer and pesticide application, conservation tillage methods, and rotation of cattle on grazing areas,

riparian plantings and other strategies. Best management practices should realistically represent the best combination of structural and/or nonstructural management practices working together to reduce impairments to water quality. These BMPs should be developed based on the site-specific conditions where the practices are to be constructed and/or implemented, and should be selected based on the economics and goals associated with the specific problem to be addressed. As

BMPs are selected for a specific application, many sources of technical information are available to assist in the selection, design and implementation.

Under ideal situations, the process provides for the protection of water quality. As with any form of pollution control measure, the benefits gained are directly associated with the degree of thought, analysis and care given to the process of selection, design, implementation, maintenance, and management.

Nonpoint Source Management Program Activities

The New Mexico NPS Program contains elements which are both statewide and watershed oriented. Since many NPS issues within the State are of such widespread concern, a number of efforts and activities must be coordinated on a statewide basis. Likewise, many issues which are of critical concern are extremely localized within specific watersheds, and therefore are addressed on a watershed-by-watershed basis.

Statewide Efforts

Nonpoint source pollution is directly related to land use practices on a broad geographical scale. In New Mexico, the principal sources of NPS pollution include agriculture, ranching, silviculture, resource extraction, hydromodification, recreation, road construction and maintenance, and on-site liquid waste disposal. Reduction in pollutant delivery from these sources is controlled or prevented through the implementation of BMPs by the responsible party. New Mexico encourages the use of BMPs for the control of NPS pollutants through a combination of efforts including incentive programs, education and outreach activities. Statewide efforts to control or reduce the degree of water quality impairments utilizes a combination of these techniques and are discussed below in the appropriate NPS category.

Agriculture

New Mexico's crop production includes irrigated and nonirrigated

activities. The impact on water quality from each of these agricultural sources varies regionally across the State. These variations are mainly due to widespread differences in suitability for each type of production. Current statewide efforts focus on providing enhanced protection of water quality with these differences in mind.

Irrigated agriculture can effect water quality through the diversion of water from natural systems as well as through the discharge of return flows. Diversion from streams is known to completely dry up reaches of streams in several areas in New Mexico resulting in the destruction of the aquatic biota. In addition, both irrigated and nonirrigated crop production can adversely effect water quality through the discharge of storm water following precipitation events.

Primary programs for control of NPS impairment from agriculture are coordinated through the United States Department of Agriculture. The majority of those efforts represent incentive programs which provide information, technical assistance and financial assistance to agricultural producers within the State. These sources include the Natural Resources Conservation Service, formerly known as the Soil Conservation Service, which provides technical assistance related to the design and planning of practices and structures, and the Farm Service Agency, which provides financial assistance for the implementation of BMPs. Additionally, the New Mexico Soil and Water Conservation Commission provides

recommendations to the Secretary of Agriculture for projects and programs through the Soil & Water Conservation Districts for producers to implement BMP's. Additional sources of funding and assistance for implementation of BMP's come from the Soil & Water Conservation Districts through mil levy referendums; distribution of county funding from the Farm & Range Improvement funds; administering federal, state, local and private foundation grants; low-interest loan programs for irrigation improvements from the Interstate Stream Commission; and providing equipment and tools. CWA § 319 appropriations are now funding many of these programs throughout the State.

The New Mexico Cooperative Extension Service also provides significant assistance to agricultural producers through its education and outreach programs. Many of the programs provided through the Extension Service are now oriented toward the protection and improvement of water quality. One such program, FARM*A*SYST, is designed to provide producers with a tool to make assessments of environmental concerns on the farmstead and provide alternative methods of management designed to benefit water quality.

Rangeland Agriculture

In New Mexico rangeland NPS pollution in the form of turbidity and siltation is often the product of natural conditions associated with arid land

climates. Most of New Mexico receives 15 inches or less of annual precipitation on highly erodible soils. This precipitation typically arrives in July and August in the form of torrential downpours following two to three months of little to no rainfall. Scarce vegetation in the form of grasses and forbs allows overland flows to strip soils from the surface.

Progress continues to be made in the area of grazing management as ranchers and State/federal allotment permittees become increasingly aware of the ecological importance of riparian areas. Although many operators continue to feel threatened by the plethora of regulation surrounding water quality and riparian related species, many now recognize that what is good for riparian areas is also good for production. Grazing management trends point to multiple-pasture rest rotation grazing systems which often include special protection for riparian areas. This type of active management, whereby cattle are frequently moved from pasture to pasture, has proven to be a reliable path to success. Riparian and upland watershed conditions often exhibit rapid improvements under this type of system.

Another issue facing the ranching community is the ever-shrinking size of suitable grazing land due to an accelerated encroachment by woody species (piñon and juniper). This phenomenon is generally thought to be a direct result of the interrupted natural fire cycle which used to occur in the southwest United States. Some progressive ranchers have begun to reverse this trend by removing woody species and reintroducing fire into the ecosystem, the results of which have proven to be positive to both water quality and quantity. Most within the ranching community recognize that the longterm sustainability of the ranching in New Mexico depends on an environmentally sensitive and active management approach. In fact, many bear witness to the fact that their ranches are thriving under these types of systems. In the words of one such rancher, "...this environmentalism is making me money."

Efforts to reduce rangeland NPS

pollution have focused on grazing practices instead of vegetation management. Years of livestock numbers reductions and implementation of grazing BMPs have had little to no effect on grazing lands NPS pollution. The recognition that a 90% reduction in livestock numbers has brought little to no improvement has prompted a reevaluation of the source of NPS pollution on grazing lands.

Fire suppression allowing woody plant species invasion is the primary cause of surface erosion in the woodland and lower elevation grasslands³. In the ponderosa pine forests, fire suppression has fostered an increase in tree densities from 19 to 50 trees per acre to highs of 3000 trees per acre resulting in an average of 30% reduction of surface flows and restriction of infiltration to ground waters⁴.

In the early 1980's, the Soil and Water Conservation Division promulgated BMPs designed to address the issues of woody invasion, diminishing grasses and forbs, reduction of surface flows and groundwater recharge. Federal and State land management agencies have not successfully implemented many of these BMPs.

The Soil and Water Conservation Commission and Districts have identified watershed restoration as the number one priority for New Mexico.

Silviculture

Larger-scale commercial timber harvesting on USFS-managed lands has been effectively halted due to continuing litigation. The only silvicultural activities presently occurring are primarily associated with personal use (fuelwood and fenceposts), habitat/watershed improvements (thinning), fire salvage logging, and urban interface/fire protection.

The New Mexico Forestry and Resource Conservation Division of the Energy, Minerals and Natural Resources Department continues to operate voluntary and regulatory programs which are directed toward the use of BMPs for silvicultural activities on State and private lands.

Areas on Forest Service Lands identified by the USFS as suitable for timber harvesting occupy roughly 10 per cent of the forested lands. Pre-1990 harvesting activities were disturbing about one half of one percent of those lands. BMPs were modified at that time to reduce impacts to water quality. Fire suppression on all Forest Service lands over the last 100 years has created conditions that favor large scale catastrophic wild fires and an average 30 per cent reduction of high quality water delivery⁵.

These reductions of water delivery from the watersheds has also contributed to exceedence of water quality standards in the lower reaches of New Mexico's rivers. As the flows of higher quality water is reduced, numeric concentrations of point and non point source pollutants increase. Soil and Water Conservation Districts (SWCD) serving areas of forested lands have engaged in extensive public outreach and education about these conditions and the need of reintroduction of fire into the ecosystem. SWCD are also soliciting partnerships with the USFS, BLM and permittees to reduce fuel loading and tree densities in an effort to restore stream flows, enhance riparian regeneration and reduce non point source pollution.

Resource Extraction

Historical resource extraction issues have been difficult to address in New Mexico due to the nature of regulatory requirements that have been in existence. Many of the inactive and abandoned sites were not subject to much scrutiny by NMED or other State regulatory agencies prior to the development of the Nonpoint Source Program. In addition, the New Mexico Mining Act (NMMA) rules which went into effect in July of 1994 require the reclamation of all land disturbing activities at mines which operated for at least two years after 1970. This should contribute to the mitigation of the impacts of mining activities on water quality.

Hydromodification

The SWQB issues the CWA § 401

Water Quality Certifications for CWA § 404 Dredge-and-Fill activities throughout the State. Individual, Regional and Nationwide permit activities are reviewed for consistency with the NPS program and for the protection of water quality standards. SWQB staff review dredge-and-fill applications to ensure that applicants are using BMPs to protect water quality. This review process includes providing comments to agencies and individuals during planning of the projects to ensure proper water quality concerns are taken into account early in the process. Following a review process, SWQB issues unconditional certification, conditional certification, or denies certification as appropriate. SWQB rarely issues unconditional certification. Unconditional certificates are issued for nationwide permits in ephemeral systems, hazardous waste cleanup and oil spill cleanup. For the majority of all nationwide permits, individual certification must be obtained. Conditions are added to the certifications to ensure maintenance of water quality standards. This change has greatly enhanced the capability to protect water quality by requiring specific practices for those activities. In those cases where BMPs have not been implemented and water quality standards violations have occurred, the State takes steps to ensure that mitigation efforts are initiated. Enforcement activities are undertaken only as a last resort to ensure compliance with State water quality standards.

Recreation

Recreation in New Mexico is an important industry which serves both residents and visitors from throughout the United States as well as from other nations. Hiking, picnicking, camping, fishing, hunting, biking, outdoor photography, off-road vehicle use, whitewater boating, and skiing attract many people to both developed and undeveloped recreational areas throughout the State. Many of the recreational areas exist on public lands administered by the BLM, BOR, USFS and the New Mexico State Parks (NMSP).

As the population increases, recreational land uses and associated impacts also increase. Nonpoint source problems associated with recreation include erosion, loss of riparian vegetation, streambank destabilization, runoff from roads, parking lots, trails and other developed areas, and on-site waste disposal. The USFS, BLM and NMSP have taken steps to reduce NPS impacts from many of their developed recreation areas through the relocation of use areas away from waterbodies, riparian plantings, the repair and maintenance or closing of roads, and the control of erosion.

The SWQB continues to address NPS impacts from recreation through federal consistency review and several CWA § 319 projects.

Road Construction And Maintenance

NMED continues to cooperate with the New Mexico State Highway and Transportation Department (NMSHTD) to provide for the increased awareness of water quality concerns related to road construction and maintenance and to provide for the increased utilization of BMPs. As a result of training provided by the SWQB and the signing of a Memorandum of Understanding in 1995 between NMED and NMSHTD, an expanded program of sound BMP implementation at road construction and maintenance sites has developed.

The SWQB participates in the planning phases of Federal Highway Administration road projects that have the potential to impact surface waters. This participation can result in changes to road alignment and design that are protective of surface water quality.

The USFS and BLM's continuing efforts to close, relocate, or rehabilitate roads has as improved watershed conditions and helped reduce the transport of sediment into surface waters.

On-Site Liquid Waste Disposal

New Mexico has expressed significant concern regarding the impairment of surface and ground water from on-site liquid waste disposal systems. In

response to this concern, NMED, through State funding, operates a statewide liquid waste regulatory program designed to address concerns through inspection and enforcement activities. Details of this effort are described elsewhere in this chapter.

Consistency Reviews

The NMED Nonpoint Source Section coordinates consistency reviews of federal, State and local projects. Environmental impact statements, environmental assessments, and various notices of intent are reviewed by NMED staff to determine consistency with the State's NPS program and appropriate comments are directed to the agencies. This insures that water quality concerns are analyzed early in the process so as to positively influence agency activities for the protection of water quality.

Cooperation between NMED and the five USFS systems within New Mexico continues. The USFS, recognizing that many forest activities have the potential to impact water quality, continues to develop and implement BMP's designed to mitigate impacts and reduce NPS pollution. NMED's involvement in the planning and development phases of forest activities has increased. In January 1996, NMED opened a NPS Section office in Silver City, which is located in the southern part of the State. This office, among other duties, handles consistency review for the Lincoln and Gila National Forests.

Examples of projects evaluated include ski area activities, timber sales, grazing permit renewals, recreational development or management, wildfire rehabilitation, watershed improvements, and fish habitat improvements.

Under Work Element 13 of the New Mexico Statewide Water Quality Management Plan, Federal, State and Local Government Agencies have been designated management responsibilities for lands and water quality standards compliance within their jurisdictions. With each designation, constituent agencies of the Water Quality Control Commission are assigned as recipients of reports designed to communicate

information and data on BMP implementation. Designated agencies have agreed to coordinate with the assigned constituent agencies in the development and implementation of BMPs.

Work Element 13 has not been amended since 1984. The entire management plan is now in the process of being reviewed and preparations are being made to have the amended plan before the WQCC in the calendar of 1999.

Education And Outreach

The Nonpoint Source Pollution Section conducts education and outreach activities related to nonpoint source pollution and its control. Through development and distribution of brochures relating to nonpoint source pollution, set up of displays, presentations, water camps, water quality sampling training and field trips, the Outreach Program has been able to reach a wide audience with information about NPS pollution and the use of best management practices (BMPs). The Outreach Program has developed slide presentations, several brochures, and three 3-dimensional models for use in outreach activities. In addition, *Clearing the Waters*, NMED's NPS pollution newsletter is published quarterly.

Watershed Efforts

As part of New Mexico's Nonpoint Source Management Plan, addressing NPS impacts within specific watersheds continues to be a primary focus. Such watershed efforts are currently active for the following rivers: Ruidoso, Gila/San Francisco, Mimbres, Gallinas, Rio Puerco, Red River, and Rio Embudo. In addition, watershed organizational workshops and citizen monitoring groups have been established with a CWA § 104(b)(3) "Watching Our Waters" program.

In order to help meet the goals of the Clean Water Act, states were directed, in 1998, through the Clean Water Action Plan (CWAP) to identify and prioritize watersheds with water quality problems. The SWQB and Natural Resources and Conservation Service (NRCS) developed a cooperative approach to initiate this effort by inviting federal agencies, state agencies, local governments, tribes and pueblos, soil and water conservation groups, industry representatives, environmental groups, etc. to participate in the development of the Unified Watershed Assessment (UWA) for New Mexico. Utilizing the USGS 8-digit system of watershed delineation, the UWA identifies the following four categories of watersheds:

Category I

Watersheds in Need of Restoration ~
watersheds do not now meet, or face imminent threat of not meeting, clean water and other natural resource goals;

Category II

Watersheds Meeting Goals, Including Those Needing Action to Sustain Water Quality ~
watersheds meet clean water and other natural resource goals and standards and support healthy aquatic systems. All such watersheds need the continuing implementation of core clean water and natural resource programs to maintain water quality and conserve natural resources;

Category III

Watersheds with Pristine/Sensitive Aquatic System Conditions on Lands Administered by Federal, State, or Tribal Governments ~
watersheds with exceptionally pristine water quality, other sensitive aquatic system conditions, and drinking water sources that are located on lands administered by federal, state, or tribal governments; and

Category IV

Watersheds with Insufficient Data to Make an Assessment ~

watersheds lack significant information, critical data elements, or the data density needed to make a reasonable assessment at this time.

The participants of this process provided data and input as to how watersheds in New Mexico would be ranked within these four categories. Watersheds within the Category I classification were further prioritized for restoration and protection efforts.

Invasive Plant Control

Salt cedar invasion into New Mexico stream systems has emerged as a significant non-point sources of pollution. Originally imported to the state to stabilize stream banks, salt cedar occupies the lower reaches of all of the states major water ways.

A phreatophyte with no biological controls, salt cedar consumes high volumes of water through evapotranspiration. Transpired water forms a gentle mist of salt laden vapor that eventually renders the habitat useless for all other riparian vegetation. Salt cedar increases the salinity of surface flows and significantly reduces those flows.

SWCD are actively engaged in salt cedar eradication and native riparian plant restoration demonstration projects that have proven successful in the last three years and are in the process of seeking funding and partners to expand efforts in the other infested stream segments in the state.

While less problems are faced with other noxious weeds, SWCD are involved with control programs to insure retention of native vegetation best suited to control nonpoint sources of pollution.

Department of Energy Environmental Oversight and Monitoring Program

On June 27, 1989, the Secretary of Energy announced a 10-point initiative that addressed the need for the DOE to improve its accountability concerning public health, safety and environmental protection by allowing states hosting the DOE facilities direct access to those facilities and by financially underwriting the costs of State oversight of DOE environmental monitoring programs. As a result of this initiative, the DOE entered several agreements, collectively known as the Agreements-In-Principle (AIP) with various states including New Mexico. The New Mexico agreement is comprehensive in scope and establishes many actions that are to be performed either jointly or separately by DOE and State agencies and organizations. The New Mexico Environment Department (NMED) is the state's designated lead agency for the agreement.

The four DOE facilities in New Mexico are Sandia National Laboratories (SNL) and the Lovelace Respiratory Research Institute (LRRRI), formerly the Inhalation Toxicology Research Institute (ITRI) in Albuquerque, the Los Alamos National Laboratory (LANL) in Los Alamos and the Waste Isolation Pilot Plant (WIPP) in Carlsbad. The New Mexico Agreement-in-Principle is designed to help assure that activities at DOE facilities are protective of the public health and safety and the environment. To accomplish the goals of the agreement, an oversight program was developed with four primary objectives:

- To assess the DOE's compliance with existing laws including regulations, rules, and standards;
- Prioritize cleanup and compliance activities;
- Develop and implement a vigorous program of independent monitoring and oversight; and
- To communicate with the public so as to increase public knowledge of environmental matters about the facilities, including coordination with local and tribal governments.

The DOE Oversight Bureau carries out the oversight and monitoring activities of the program. Although the Oversight Bureau has no regulatory status, it facilitates compliance with applicable environmental regulations by reporting water quality concerns and infractions to DOE and the appropriate regulatory NMED Bureaus (i.e., Surface Water Quality, Ground Water Quality, and Hazardous & Radioactive Materials). DOE Oversight Bureau staff communicate routinely with the public to increase public knowledge of oversight, monitoring, and environmental issues involving the facilities. The Oversight Bureau issues quarterly and annual implementation reports to the DOE describing the scope of work, objectives, accomplishments and significant issues that occurred during each period. Results of oversight and monitoring activities are also available to the public along with numerous documents transmitting technical comments and concerns relative to specific program areas. These reports and documents are a source of reliable technical information for the writers of facility proposals and decision makers at

regulatory agencies.

Surface Water Protection at DOE Facilities

In its efforts to protect the waters of the State, the DOE Oversight Bureau monitors and assesses DOE compliance with WQCC regulations, all water quality stream standards and NPDES permitting under the federal CWA.

The DOE Oversight Bureau reviews all activities at DOE facilities for their impacts on New Mexico's surface waters. These reviews include both point source and nonpoint source control efforts. DOE Oversight Bureau's activities with water quality monitoring programs include, but are not limited to, inspections, document verification/validation and field monitoring. The DOE Oversight Bureau also responds to and investigates spills or releases that enter or have the potential of entering a watercourse.

The DOE Oversight Bureau has collected samples of aquatic benthic macroinvertebrates from streams and springs located in DOE facilities, including neighboring Pueblos, to determine the biological condition of surface waters in and around DOE facilities. Data from initial sampling will provide baseline information on surface water biological communities and reference conditions for the comparison of neighboring watersheds. An extensive database of habitat assessment and associated macroinvertebrate community metrics will aid in these assessment of future changes in the biological communities.

Surface Water Oversight and Monitoring at Los Alamos National Laboratories

Surface water flows occur at LANL in response to snowmelt, storm water runoff, springs and NPDES permitted discharges. Many canyons have springs that maintain surface water flows for short distances (100 feet) in the western end of LANL. Springs maintain perennial flows that extend for up to three miles in upper Pajarito Canyon and

approximately one mile in Cañon de Valle. Spring flows and the water quality of the perennial reaches in upper Pajarito and Cañon de Valle were monitored from 1995 to 1997 (5). Flow rates ranged from 0.049 to 0.395 cfs in Pajarito Canyon and water quality data showed no evidence of man-made or anthropogenic constituents. Flows in Cañon de Valle

ranged from 0.023 to 0.179 cfs and water quality data showed high-explosive compounds, as well as levels of barium, manganese, and nitrate plus nitrite as nitrogen that were elevated relative to those for water in Pajarito Canyon (5). NPDES discharges maintain nearly constant flows in upper Sandia Canyon for approximately three miles. The

majority of the watercourses are ephemeral in nature at the eastern boundary of LANL.

NPDES Monitoring Activities

The DOE Oversight Bureau continues to sample and evaluate LANL's NPDES permitted outfalls, permit number NM0028355, to insure that all permit parameters are met, State WQCC surface water designated uses are attained and stream standards are not exceeded. The current designated uses for all streams and watercourses at LANL are livestock watering and wildlife habitat.

The DOE Oversight Bureau notified DOE that discharges from the Technical Area 50 (TA-50), Radioactive Waste Treatment Plant (RWTP) exceeded DOE guidelines, and the State of New Mexico Radiation and Protection standards and regulations (Figure 16). In response, DOE has formed the TA-50 Compliance Task Force. The task force, which includes the DOE Oversight Bureau, will identify wastewater treatment deficiencies, prioritize improvements necessary and develop a schedule for implementation. A sample collected in 1997 from the RWTP outfall by the DOE Oversight Bureau, while below New Mexico radiation protection limits, showed elevated levels of strontium-90, cesium-137, plutonium-238, plutonium-239/240, gross alpha, and gross beta activity.

In April, 1996, the Ground Water Quality Bureau determined that due to the high nitrate content of discharges from the RWTP, a ground water discharge plan for the RWTP was required. The plan includes two upgrades to the RWTP and is being implemented in two phases. The Phase I upgrade involves the installation of an Ultrafiltration and Reverse Osmosis treatment system to reduce levels of plutonium-238, plutonium-239, americium-241 and other radioisotopes discharged from the RWTP to Mortandad Canyon. The Phase I upgrades are scheduled to be operable by January of 1999. The Phase II upgrade involves the removal of nitrate from the water using a biological nitrate removal system. Due

to delays in the implementation of Phase II upgrades, a letter of non-compliance was sent to DOE in September 1998. DOE is required to submit a plan for nitrate removal with an implementation deadline by March 1999.

As part of LANL's outfall reduction project DOE Oversight Bureau staff have verified approximately 90 outfalls as being deleted during 1996 to 1998. Memos of verification, detailing the outfall current status (e.g., deleted, currently receiving storm water, proximity to Solid Waste Management Units) were forwarded to the NMED/SWQB. LANL's 1998 NPDES permit application indicates that 20 outfalls will continue to discharge effluent.

Storm Water Monitoring Activities

The EPA has authorized LANL to discharge storm water associated with industrial or construction activity under EPA's NPDES storm water general permit number NMR00A384. This permit expired September 9, 1997, and LANL has applied for coverage under the EPA NPDES Storm Water Multi-Sector General Permit. Approximately sixty-five Storm Water Pollution Prevention Plans (SWPPPs) have been prepared for individual sites or activities. Storm water Discharge Monitoring Reports (DMRs) are submitted to EPA and NMED for the Materials Disposal Areas (MDAs) G & J at Technical Area (TA) 54 and the Plutonium Facility, TA-55, Building 4. In June, 1997, sediment samples, collected in drainages leading from the site of Decontamination and Decommissioning (D&D) activities at TA-21, showed elevated levels of mercury and plutonium. The DOE Oversight Bureau recommended that the laboratory develop and implement a SWPPP for TA-21. In May, 1998, EPA Region 6 conducted a NPDES compliance inspection at TA-21. Findings from the inspection include an unsatisfactory rating for Records/Reports, Storm Water, Pollution Prevention and a marginal rating for Facility Site Review.

On February 16, 1995, the DOE

Oversight Bureau met with the DOE LAAO to discuss the bureau's concerns that sedimentation from an access road located at the head of the Sandia wetlands could adversely impact the wetlands. Immediate mitigation measures were addressed and the need for a long term management plan for the Sandia Canyon wetlands was discussed. In March, 1995, DOE formed the Sandia Wetlands Working Group, an interdepartmental group which includes the DOE Oversight Bureau, to address short- and long-term management strategies needed in Sandia Canyon. Implementation of the Los Alamos County Landfill Storm Water Pollution Prevention Plan has been the primary focus of the wetlands working group. In December, 1997, the SWQB issued a Notice of Violation (NOV) to the County of Los Alamos regarding the failure of storm water controls at the landfill. In June, 1998, the HRMB issued a compliance order to DOE regarding the improper disposal of hazardous materials in the rubble pile/road crossing. Interim actions have been taken to prevent a recurrence of the erosion that prompted the NOV, and a comprehensive plan to address the erosion concerns posed by the rubble pile/road crossing, culvert discharge, the landfill's stockpiled soil, and the hazardous material disposal issue is under review by NMED and the Army Corp of Engineers. Projects to reduce mass erosion of the rubble pile/road crossing at the head of the wetlands have been implemented and armoring of the storm water culvert below the rubble pile with a gabion is planned to begin in early 1999. Unstable bank conditions and high storm water peak flows have promoted downcutting of the stream channel through the wetlands. Active head-cutting is occurring in the lower portion of the wetlands. Projects to restore the wetland's function of water storage, suspended solid removal, and contaminant filtration/entrapment have been suspended pending the completion of the Environmental Restoration group investigation of the contaminant levels (primarily PCB) found in the Sandia Canyon wetland sediments and in storm water inflow and outflow.

The DOE Oversight Bureau continues to detect mercury in storm water samples from DP Canyon (tributary to Los Alamos Canyon), Los Alamos Canyon, and Cañada del Buey. The DOE Oversight Bureau continues to detect elevated levels of strontium-90 and gross

beta activity in storm water from DP Canyon. High levels of strontium-90 and gross beta were detected in storm water runoff from Pratt Canyon (a tributary to Ten Site Canyon). Elevated levels of strontium-90, gross alpha, and gross beta activity were detected in ambient water

collected in Mortandad Canyon below the TA-50 RWTP outfall. An expanded program of storm water sampling was recommended to evaluate regional background conditions and monitor potential sources of mercury, and other contaminants.

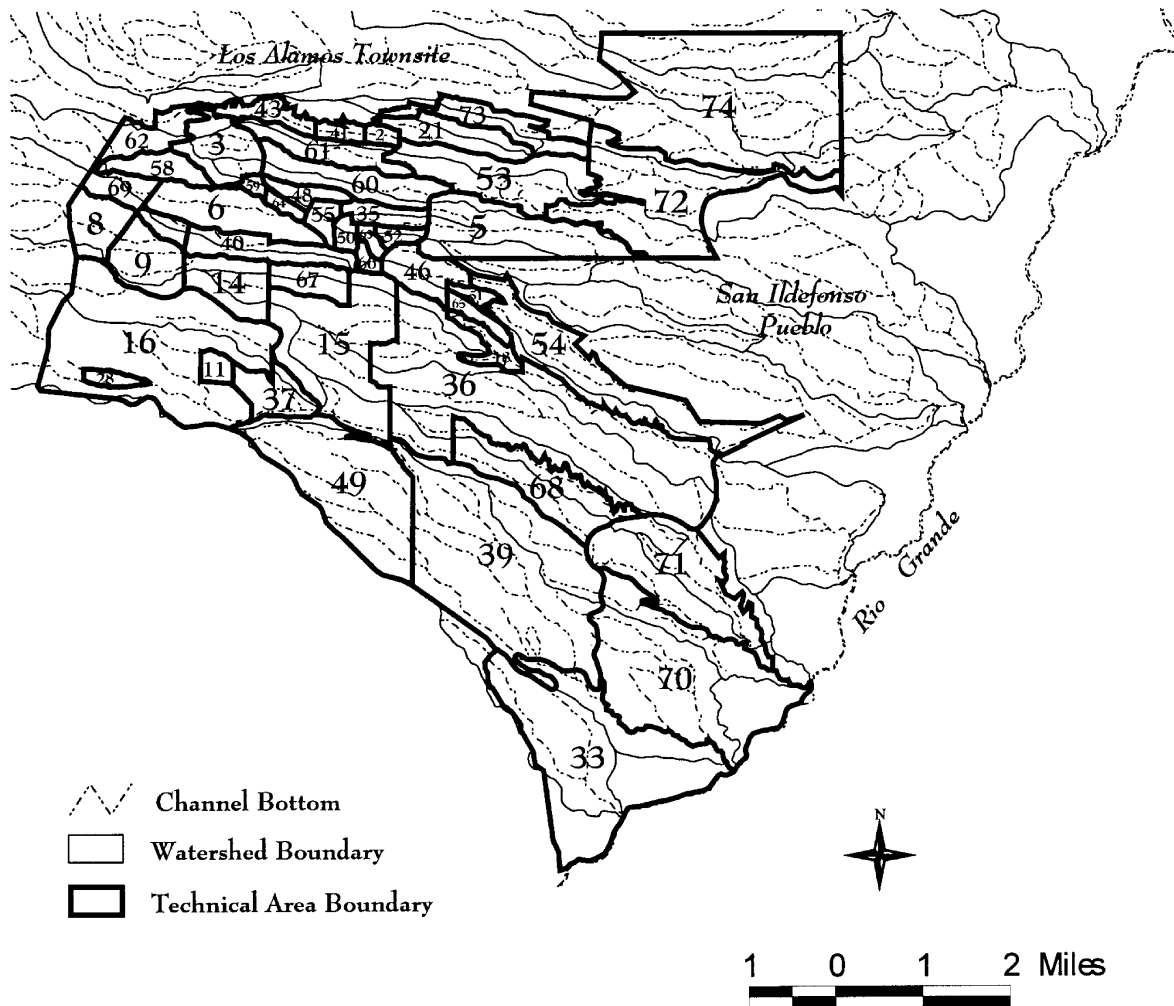


Figure 16.

Los Alamos National Laboratories Technical Areas.

Environmental Restoration Activities

In an effort to reduce the concentration of contaminants in the suspended sediment load during storm events, the DOE Oversight Bureau has recommended, and DOE has implemented BMPs at specific Potential Release Sites (PRS) located within watercourses at LANL. The DOE Oversight Bureau and DOE LAAO are working together in an effort to identify and implement BMPs and expand the storm water monitoring program. The DOE Oversight Bureau has recommended that DOE implement a lab-wide, watershed management approach which will:

- Develop watershed maps that identify all PRSs located in watercourses, the concentrations of contaminants, and the extent of contamination at each PRS;
- Establish a prioritization scheme that will assess each PRS for potential storm water impacts on water quality;
- Identify, implement and maintain BMPs to mitigate storm water transport of contaminants from all sites; and
- Develop a storm water monitoring program that will verify BMP effectiveness, and document storm water quality in all watersheds at LANL.

In 1997, LANL developed an Administrative Procedure (AP 4.5) which evaluates the erosion potential at each Environmental Restoration (ER) site. LANL conducted erosion potential assessments at over 1000 ER sites. Approximately 25% scored high or medium for erosion potential, indicating a need for further assessment. High and medium scoring sites are evaluated by the LANL's Surface Water Assessment Team, which includes members from the SWQB and the DOE Oversight Bureau.

The team recommends Best Management Practices to mitigate any contaminant transport potential and provides direction regarding monitoring needs. As a result of these efforts, erosion controls such as silt fences, run-on controls, and slope stabilizations were put in place on 179 sites.

Watershed maps are useful in evaluating the cumulative impacts of multiple PRSs on water quality and biological integrity at LANL. The DOE Oversight Bureau plotted the high and medium scoring sites, based upon erosion potential, on a base map showing watersheds and sub-basins. Sub-basins were identified that had clusters of medium/high scoring sites. Locations for stream gages and samplers were identified to monitor these sub-basins. Maps that show locations of all sources of potential PCB, mercury, or other contamination on a lab-wide or specific watershed basis should be available in 1999.

The remediation of a PCB-contaminated Solid Waste Management Unit (SWMU) 3-056 (c), located upstream from the Sandia wetlands, has raised concerns of potential PCB contamination of the wetlands. The ER program has initiated an investigation of the Upper Sandia Canyon wetlands to determine the extent of contamination in the wetland and stream bottom sediments. Storm water is being collected in each of the Canyon's two tributaries and at the outlet of the wetland to determine contaminant loading to and from the wetlands. The data is pending and will be used to conduct human health and ecological risk assessments. Small rodents, collected by the LANL ESH-20 group from the Sandia wetlands showed detectable levels of PCB in organ and fatty tissue. Aquatic insects (adult dragonflies and damselflies), collected in the Sandia Canyon wetlands by the DOE Oversight Bureau, showed no detectable

PCB. Northern pike and catfish samples from Cochiti lake had detectable levels of PCB(Aroclor 1260) while white bass and carp samples showed elevated levels of mercury.

The DOE Oversight Bureau collected storm water below Material Disposal Area M, an abandoned dump site where a remediation was conducted in 1995 and 1996. Sediments separated from the storm water showed elevated levels of mercury and lead. The laboratory has since upgraded erosion controls and instituted a routine maintenance program.

Benthic Macroinvertebrate Studies

In a cooperative effort between the DOE Oversight Bureau and LANL, aquatic benthic macroinvertebrates are being collected from perennial reaches of streams and springs found at LANL and surrounding streams (e.g., Rito de los Frijoles, Santa Clara Creek). The macroinvertebrate communities were evaluated using the SWQB Criteria for Assessment of Aquatic Life Use Support. The perennial reach of upper Pajarito Canyon has been found to have a diverse, well balanced macroinvertebrate community of relatively intolerant species and has been used by the DOE Oversight Bureau as the reference site (6). Samples were collected in Upper Cañon de Valle and Upper Sandia Canyon in 1997. Preliminary assessment of the Upper Cañon de Valle Biological Condition score (78% of reference site) indicates full support of aquatic life use.

Preliminary assessment of the Upper Sandia Canyon's Biological Condition scores (59% to 21% of reference site) indicates partially-supportive to non-supportive of aquatic life use. Poor habitat quality in the Sandia Wetlands (e.g., unstable sands and gravels, flash flooding effects) contribute to the low Biological Condition scores.

Surface Water Oversight and Monitoring at Sandia National Laboratories

Located on Kirtland Air Force Base (KAFB) in the southeastern section of Albuquerque, Sandia National

Laboratories/New Mexico (SNL/NM) consists of five technical areas (Figure 17), and employs approximately 7,000

people. KAFB is drained by ephemeral streams that flow westerly towards the Rio Grande valley. Major among these

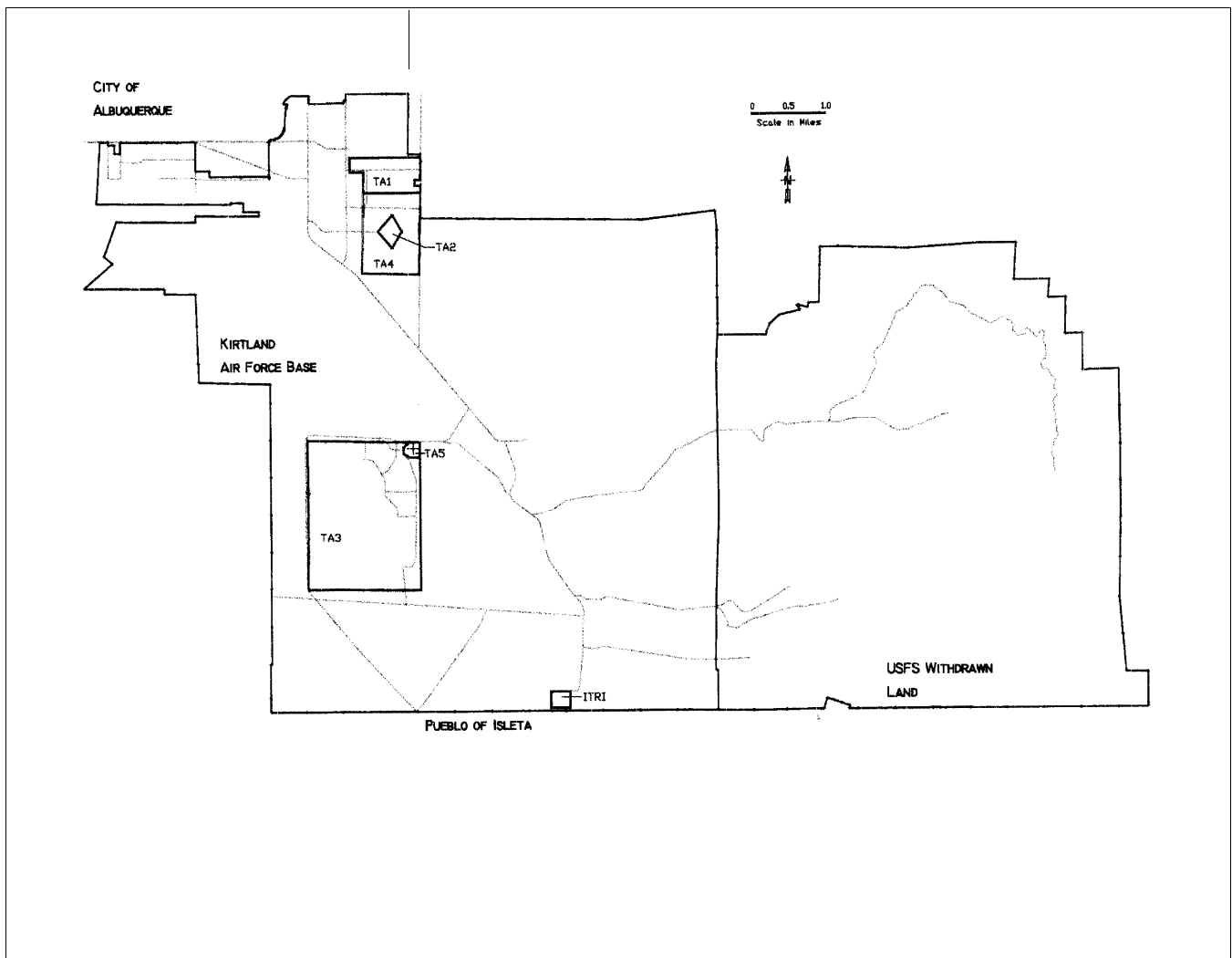


Figure 17. Sandia National Laboratories Technical Areas.

are Tijeras Arroyo, Arroyo del Coyote, and the so-called Travertine Hills Arroyo. SNL/NM has no NPDES point source discharges other than storm water.

Sites of past disposal practices, known as Environmental Restoration (ER) sites, have a potential to affect surface water through erosion and mobilization of contaminants. The DOE Oversight Bureau assisted SNL with a procedure designed to evaluate erosion potential at ER sites. The ER sites are scheduled for remedial action pursuant to RCRA, but the procedure indicates opportunities for interim BMP applications.

The DOE Oversight Bureau observes ER activities and makes recommendations to SNL related to surface water protection. Bureau staff

conduct periodic site visits to assess the condition of BMPs.

Wastewater Monitoring Activities

Numerous laboratories and manufacturing facilities at SNL generate industrial wastewater and sanitary wastewater. SNL/NM wastewater activities are served by the City of Albuquerque (COA) sanitary sewer system. SNL/NM does not operate a wastewater treatment facility and is not directly permitted by EPA, however, they are obliged to comply with the environmental requirements set forth in the CWA for discharges to waters of the United States.

SNL participates in the NPDES pretreatment program and is permitted by

COA to discharge wastewater to the COA sanitary sewer system. SNL/NM has six wastewater discharge permits with COA for sanitary sewer discharges which must comply with the federal pretreatment standards. Wastewater samples are collected quarterly by the COA from each permitted location and analyzed for various constituents. On a monthly basis, SNL/NM performs voluntary monitoring of each permitted location and collects wastewater samples for analysis of permitted constituents as well as for other hazardous pollutants. The DOE Oversight Bureau coordinates with SNL's Environmental Monitoring Department to split quarterly samples from one location for analysis of radioactive constituents.

Storm Water Monitoring Activities

SNL/NM is included in the Standard Industrial Classification (SIC), code 8733, Government Non-Commercial Research Organization. SNL/NM applied for and is granted coverage under an NPDES Storm Water Multi-Sector

General Permit (number NMR05A181) for discharges associated with industrial activities. A Storm Water Pollution Prevention Plan is in place, and storm water discharge sampling occurs at two locations. The DOE Oversight Bureau is evaluating the pollution prevention plan.

In cooperation with SNL, the DOE Oversight Bureau is expanding a storm

water monitoring program to enhance assess the character of storm water on KAFB. SNL samples storm water at various location unrelated to the NPDES permit using portable sampling equipment. The Oversight Bureau collects samples with similar equipment intended to complement SNL's data.

Surface Water Oversight and Monitoring at the Lovelace Respiratory Research Institute

As a result of a contractual change with DOE, the facility formerly known as ITRI is now called the Lovelace Respiratory Research Institute (LRRI). Like SNL, LRRI is located on KAFB (Figure 17). More specifically, it lies in the extreme southwest corner of KAFB, opposite the Pueblo of Isleta. The facility is drained by two unnamed ephemeral streams, one on the north and one on the south.

The contractual change gave Lovelace more independence and LRRI is no longer considered a DOE facility. Consequently the DOE Oversight Bureau will not directly monitor ongoing activities of the institute. The DOE Oversight Bureau will continue monitoring ground water from a system

of wells surrounding LRRI that measure the effects of past activities at ITRI.

Wastewater Monitoring Activities

Laboratory operations, cooling systems, and sanitary facilities generate wastewater at LRRI. Sewage lagoons previously used were taken out of service in 1992. Thus, like SNL, LRRI has no treatment facility of its own. Wastewater disposal needs at LRRI are served by the City of Albuquerque's (COA) sanitary sewer system.

LRRI also participates in the NPDES pretreatment program, and is permitted by the COA, permit No. 2178A-2, to discharge wastewater to the COA sanitary sewer system, and must comply

with the federal pretreatment standards. Wastewater samples are collected quarterly by the COA from each permitted location and analyzed for various constituents. LRRI consistently splits the collected wastewater samples for analysis of permitted constituents, and reports the results on a semi-annual basis.

Storm Water Monitoring Activities

LRRI monitoring plan states that because none of the permit filing requirements apply, the facility is not required to have a NPDES permit for storm water discharge (7). Thus, LRRI does not monitor storm water runoff.

Surface Water Oversight and Monitoring at the Waste Isolation Pilot Plant

Surface water within nine miles of WIPP is limited to two dirt tanks used to water livestock. Red tank is located three to four miles to the northwest, and Noye tank is located five miles north of the WIPP site. These tanks catch runoff from as much as three square miles and are a perennial source of water for wildlife. Protection methods used by DOE for these bodies of water are the same methods for protecting the site in case of a release via an air plume.

Automatic exhaust filtration will be diverted through a building of High Efficiency Particulate Absorption filters once a release has been detected through a series of early warning alarms. It is expected that all contaminants will be filtered out before reaching the atmosphere, thereby eliminating fallout of contamination in the downwind direction of Red Tank and Noye Tank.

In 1998, the DOE Oversight Bureau evaluated fifteen SWMUs, primarily mud

pits from drilling of exploration wells and a material storage area, to determine the potential for surface water erosion of contaminated sediment from these SWMUs. The WIPP topography (e.g., sand dunes, no defined drainage channels) preclude migration of contaminants off-site by surface water, though some sites exhibited potential for limited migration of contaminants (e.g., 50 to 100 ft.).

WATER QUALITY IMPROVEMENTS

New Mexico is fortunate in being able to demonstrate water quality improvements in specific watersheds. Since many of the State's high quality waters exist in areas managed by USFS, management changes and BMP implementation in many of these areas

results in a rapid benefit even though the State does not always have the necessary data to establish statistical correlation between the implementation of BMPs and an improvement in water quality. In many instances, changes in management practices will not be immediately evident,

due to slow vegetative growth rates and other ecological factors. Actual improvements within the water column may not be noticeable for years, and possibly even decades. Due to this "ecological lag time", NMED is exploring the use of other indicators of

improvement. NMED has begun to develop protocols for assessing sedimentation through the use of biological and geomorphological methodologies. NMED also recognizes the need for and plans to develop protocols for assessing riparian areas and how they influence water quality.



REFERENCES:

Programs For Surface Water Quality Control

New Mexico Water Quality Control Commission

- 1) 1995 New Mexico Water Quality Control Commission Regulations as amended through November 15, 1995. Santa Fe, New Mexico. 129 pages.

New Mexico Environment Department

- 2) 1994 New Mexico's Border Area: Environmental Considerations. Santa Fe, New Mexico. 27 pages.

New Mexico Environmental Improvement Board

- 3) 1989 New Mexico Solid Waste Management Regulations. Santa Fe, New Mexico. 21 pages.

New Mexico Water Quality Control Commission

- 4) 1994 New Mexico Nonpoint Source Pollution Management Program. Santa Fe, New Mexico. 53 pages.

New Mexico Environment Department

- 5) 1998 Dale, M.R., Flow and Water-Quality Characteristics of Perennial Reaches in Pajarito Canyon and Cañon de Valle, Los Alamos National Laboratory, Report NMED/DOE/AIP-98/1
- 6) 1996 Ford-Schmid, R., Reference conditions for Los Alamos National Laboratory streams using benthic macroinvertebrate assessment in upper Pajarito Canyon, Guidebook 47.

Inhalation Toxicology Research Institute

- 7) 1993 Environmental monitoring plan, ITRI: Lovelace Biomedical and Environmental Research Institute, HPO-DOC-003, 41 pages.